Amendments to the Specification:

Please replace paragraph [0013] with the following paragraph:

In ~~on~~ **one** arrangement a timing device is reset at one point during each grinding process, and the force measurement is performed for a period of time determined by the timing device following the reset point, and the values of these force measurement signals (or a mean of these force measurement signal values) is/are compared with force measurement signal values from at least a preceding workpiece grind on a similar component, (or a mean of the force measurement value signals from a plurality of preceding workpiece grinds on similar components).

Please replace paragraph [0021] with the following paragraph:

The invention also provides a method of monitoring grinding wheel wear, in which the instantaneous power demand of a linear motor drive which advances and maintains a grinding wheel in grinding contact with a workpiece is monitored during the same part of a grinding process performed on each of a succession of similar workpieces, and a warning signal is generated immediately **when** the power demand exceeds a predetermined value.

Please replace paragraph [0029] with the following paragraph:

Figure 4 shows the increase in normal force on the sidewall grind during the last 7 shafts ground using the left hand wheel of a pair **of wheels** both designed to provide undercuts in a crankpin;

Please replace paragraph [0029] with the following paragraph:

It will be seen that the peak forces for the sidewall grind remain relatively constant over the ~~lift~~ **life** of the grinding wheel until just prior to wheel failure where the forces increased dramatically. The X-axis of the graph is the crankshaft number and in this case something in excess of 2,900 crankshafts were ground by the grinding wheels but the plot is only from wheel 1950 through to 2,913 which was when the wheel failed. It will be seen that a huge peak in grinding force occurred just after 2,900 shafts had been ground when the peak normal force which had previously been of the order of 500 Newtons rose to in excess of 3,000 Newtons.

Please replace paragraph [0043] with the following paragraph:

As stated previously the invention is equally applicable to flat faced grinding wheels **2** such as shown in Fig 6. When grinding **a workpiece 8** using a flat faced wheel the edge region **4** of the wheel will perform greater amounts of work than the central region **6** of the wheel. The sides of the wheel will therefore fail before the remainder of the wheel. This type of application would therefore still require the windowing approach provided by the invention.

Please replace paragraph [0045] with the following paragraph:

Fig ~~6~~ 7 shows by way of a flow diagram the monitoring and decision making steps of a wheel monitoring system embodying the invention. The system assumes a formed CBN wheel to be grinding a formed region of a crankshaft and a linear motor wheelfeed.

Please replace paragraph [0045] with the following paragraph:

Fig 8 shows a wheel 10 carried on a spindle 12 of a wheel-head 14 itself carried by the primary 16 of a linear motor drive, the secondary of which 18 is secured to the machine bed 20. Current I to the primary 16 is supplied from a power supply 22 **which supplies a constant EMF and is** itself under the control of the machine computer 24. Grinding force between wheel 12 and workpiece 26 is proportional to the current I and since this value is available to the computer ~~22~~ 24 the latter can generate an instantaneous numerical value F proportional to I, to yield a succession of values of F. Since it is important for the value of F to correspond to the same point in each grind, the computer 24 is programmed to calculate the value of F at a predetermined stage during the grinding of each of a succession of similar components. When journal grinding crank pins of crankshafts for example, in which the wheel is employed to plunge grind between side walls at opposite ends of a crank pin, the value of F is calculated during the plunge grind since as mentioned in relation to Fig 6, that is when wheel wear is most likely to first become evident.

Please replace the Abstract, paragraph [0062] with the following paragraph:

A method of monitoring the wear of a grinding wheel measures the force exerted between the wheel and a workpiece, and generates a warning signal when the measured force exceeds a predetermined threshold value. A signal proportional to the normal grinding force is obtained by measuring the electrical power drawn by the wheelfeed drive motor during grinding. The value of the force proportional signal is compared with corresponding values obtained during the grinding of one or more preceding similar workpieces. Where the grinding wheel includes an annular ridge for grinding an undercut in a workpiece, the ridge portion of the wheel will normally perform more work than the remainder of the wheel, will be liable to the greatest wear, and the force signals will be measured while such portions of the wheel are performing work. The method may be used with electroplated CBN grinding wheels.